

limited to, a hydroxy group, an amino group, a thiol group, an aldehyde group, a carboxyl group and an acyl group. The functional group may be present as a surface property of the support itself, or it may be introduced by surface treatment. Examples of supports with surface treatment include a glass treated with a commercially available silane coupling agent such as aminoalkylsilane or treated with a polycation such as polylysine or polyethyleneimine. Several treated slide glasses are commercially available.

A gene that is influenced by an endocrine disruptor or a DNA fragment derived from the gene is immobilized onto the DNA array of the present invention. The DNA array may be a DNA microarray in which double-stranded DNAs of the genes or the DNA fragments derived from the genes are arrayed and immobilized onto the same support under denaturing conditions. At least a portion of the immobilized DNA may be single-stranded. The DNA array herein may be prepared by spotting double-stranded DNAs onto the same support in array under denaturing conditions. The density of the array in the DNA array of the present invention is not specifically limited. For example, a DNA array with high density such as an array onto which DNAs are immobilized at 100 dot/cm² or more can be preferably used.

The DNA fragment to be arrayed and immobilized

onto a support in the present invention is not limited to specific one. In general, a double-stranded polynucleotide of 50 bases or more in length or a derivative thereof, which is prepared by enzymatic amplification by polymerase chain reaction (PCR) or the like and converted into single-stranded DNAs or derivatives thereof by denaturing upon immobilization onto a support for immobilizing a DNA, can be preferably used. The derivative may have modification which enables the immobilization onto the surface of the support. Examples of the derivatives include, but are not limited to, a DNA into which a functional group such as an amino group or a thiol group is introduced at the 5'-terminus of the DNA.

For example, a DNA amplified by PCR or the like using a genomic DNA library or a cDNA library as a template can be used as a gene or a DNA fragment to be immobilized onto a support. An oligonucleotide synthesized based on a known nucleotide sequence can also be used. A nucleic acid other than a DNA which is known in the art to be able to be used for hybridization (for example, an RNA prepared by in vitro transcription) can be immobilized in place of a DNA. The DNA array can be prepared by immobilizing the gene or a fragment thereof onto a support according to a known method, for example, by introducing an amino group to the support. The DNA array of the present invention onto which genes are

arrayed and immobilized can be prepared by conducting the immobilization procedure using an instrument for preparing DNA arrays such as an instrument for preparing DNA chips from GMS.

5 A gene encoding a protein having a function involved in the exertion of an activity of a hormone, or a fragment thereof, is immobilized onto the DNA array used in the present invention. If a fragment is used, a fragment of, for example, about 100 b to about 1 kb in length can be preferably used, although the length of the fragment is not limited to specific one. The length may be shorter or longer than that described above as long as the fragment specifically hybridizes with a nucleic acid from a test sample. Examples of such genes include, but are not limited to, a gene for a hormone receptor, a gene encoding a cofactor for a receptor, a gene encoding a protein related to signal transduction from a receptor, a gene encoding a protein related to biosynthesis or metabolism of a hormone, an oncogene and the like. In addition, a gene that is influenced by an endocrine disruptor, for example, obtained according to the method as described in (1) above may be immobilized. Furthermore, since all of the genes that are influenced by endocrine disruptors can be obtained according to the method as described in (1) above, a DNA array for detecting genes that are influenced by endocrine